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EXAMINER	
LENNOX, NATALIE	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/674,131	COMERFORD ET AL.	
	Examiner	Art Unit	
	Natalie Lennox	2609	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 September 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 November 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *September 29, 2003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 6, 14-15, 18-19, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marshall (US Statutory Invention Registration H1497) in view of Petajan (US Patent 4,975,960).

As per claim 1, Marshall teaches an apparatus for imaging the mouth of a user while detecting the speech of the user comprising:

a headset adapted so as to be worn on the head of the user (Fig. 1, headset 100 and Fig. 3):

a microphone mounted on the headset and positioned so as to detect the speech of the user (Fig. 1, microphone 104 and Fig. 3);

an illumination source mounted on the headset for illuminating the mouth of the user (component 102 of Fig. 1, also in Col. 3, lines 43-47, *a user headset 100 is shown to be provided with a combination of photodetectors and/or thermal detectors 102 with the former of these being also provided with a light emitting diode source of optical illumination energy*);

a photodetector mounted on the headset and positioned so as to capture a frontal view of the mouth of a user (photo/thermal detector(s) from Fig. 3, also Col. 3,

lines 42-45, *In this Fig. 1 embodiment of the invention, a user headset 100 is shown to be provided with a combination of photodetectors and/or thermal detectors 102*);

a communication device transmitting the output of the photodetector and the output of the microphone to a computer (Col. 3, lines 48-51, *all of these energy transducers provide electrical signals to an analog signal processing apparatus 106* (from Fig. 1) *by way of the multiple channeled flexible tether cord 118*).

However, Marshall does not specifically mention that the photodetector is a video camera. Petajan teaches *a solid state video camera* (Col. 5, line 7), which has an image sensor array less than four square centimeters in area, and which could conceivably be head mounted beside a microphone and light sources on a boom (Col. 5, lines 20-23). Petajan also shows in Fig. 7 that camera 20 is located in front of the user and from Figs. 1 and 2 we clearly see that the image obtained from the camera shows the frontal area of the mouth.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the feature of a video camera mounted on a headset as taught by Petajan for Marshall's apparatus because Petajan provides an apparatus and method for electronically tracking and detecting facial features and apparatus and methods for automatic speech recognition (Col. 1, lines 10-13), wherein the tracking system is used for speech recognition (Col. 2, lines 31-32) and wherein the invention uses a video camera to scan the individual's face (Col. 2, lines 20-21).

As per claim 6, Marshall, in view of Petajan, teaches the apparatus according to claim 1, wherein the video camera is positioned so as to capture a frontal view of the

mouth of the user and is positioned substantially on the center line of the mouth (Petajan's Fig. 7 shows that the video camera is positioned in front of the user and, as shown on Fig. 2, it is capturing a frontal view of the mouth. Also Marshall's Fig. 3, shows the photo/thermal detectors attached to the headset and placed in front of the mouth of the user.).

As per claim 14, Marshall, in view of Petajan, teaches the apparatus according to claim 1, wherein the illumination source is continuously energized (Marshall's Col. 4, lines 60-63, *either the battery operated light emitting diode arrangement or the pulsating energy source energized light emitting diode may be used in the Fig. 1 and Fig. 2 embodiments of the present invention*).

As per claim 15, Marshall, in view of Petajan, teaches the apparatus according to claim 1, wherein the illumination source being periodically energized (Marshall's Col. 4, lines 60-63, *either the battery operated light emitting diode arrangement or the pulsating energy source energized light emitting diode may be used in the Fig. 1 and Fig. 2 embodiments of the present invention*).

As per claim 18, Marshall, in view of Petajan, teaches the apparatus according to claim 1, wherein the headset includes a boom supporting the video camera and illumination source so as to capture the frontal view of a mouth (Marshall's Fig. 3 shows the headset with a boom attached to it holding the photo/thermal detector(s) and LED, also Petajan's Col. 5, lines 20-23, *since the image sensor array less than four square centimeters in area, it could conceivably be head mounted beside a microphone and light sources on a boom*).

As per claim 19, Marshall, in view of Petajan, teaches the apparatus according to claim 18, wherein the boom supports the microphone in the vicinity of the mouth (Marshall's Fig. 3 shows the headset with the microphone attached to the boom and near the mouth).

As per claim 22, Marshall, in view of Petajan, teaches the apparatus according to claim 1, wherein the communication device is cabling (Marshall's Fig. 1 and Col. 3, lines 48-51, *all of these energy transducers provide electrical signals to an analog signal processing apparatus 106 by way of the multiple channeled flexible tether cord 118*).

3. Claims 2-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marshall (US Statutory Invention Registration H1497) in view of Petajan (US Patent 4,975,960) as applied to claim 1 above, and further in view of Cofer et al. (US 2002/0061134).

As per claim 2, Marshall in view of Petajan teach the apparatus according to claim 1, but they do not specifically mention the video camera being a black and white CMOS type camera. However, Cofer et al. teach *an image capturing device, preferably a standard black and white CCD video camera 810 (from Fig. 18) operating at thirty frames per second*, [and wherein the] *use of a color or CMOS-based camera is also contemplated* (Paragraph 0103]).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the feature of a black and white CMOS type camera as taught by Cofer et al. for Marshall's apparatus, as modified by Petajan, because

Cofer et al. provides a visual object detection system that uses one or more images from a video camera, digital camera, etc., to provide access and/or presence monitoring of an area of interest (paragraph [0008]).

As per claim 3, Marshall in view of Petajan teach the apparatus according to claim 1, but they do not specifically mention the video camera being a color CMOS type camera. However, Cofer et al. teach *an image capturing device, preferably a standard black and white CCD video camera 810 (from Fig. 18) operating at thirty frames per second*, [and wherein the] *use of a color or CMOS-based camera is also contemplated* (Paragraph 0103]).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the feature of a color CMOS type camera as taught by Cofer et al. for Marshall's apparatus, as modified by Petajan, because Cofer et al. provides a visual object detection system that uses one or more images from a video camera, digital camera, etc., to provide access and/or presence monitoring of an area of interest (paragraph [0008]).

As per claim 4, Marshall in view of Petajan teach the apparatus according to claim 1, but they do not specifically mention the video camera being a black and white CCD type camera. However, Cofer et al. teach *an image capturing device, preferably a standard black and white CCD video camera 810 (from Fig. 18) operating at thirty frames per second*, [and wherein the] *use of a color or CMOS-based camera is also contemplated* (Paragraph 0103]).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the feature of a black and white CCD type camera as taught by Cofer et al. for Marshall's apparatus, as modified by Petajan, because Cofer et al. provides a visual object detection system that uses one or more images from a video camera, digital camera, etc., to provide access and/or presence monitoring of an area of interest (paragraph [0008]).

As per claim 5, Marshall in view of Petajan teach the apparatus according to claim 1, but they do not specifically mention the video camera being a color CCD type camera. However, Cofer et al. teach *an image capturing device, preferably a standard black and white CCD video camera 810 (from Fig. 18) operating at thirty frames per second*, [and wherein the] *use of a color or CMOS-based camera is also contemplated* (Paragraph 0103]).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the feature of a color CCD type camera as taught by Cofer et al. for Marshall's apparatus, as modified by Petajan, because Cofer et al. provides a visual object detection system that uses one or more images from a video camera, digital camera, etc., to provide access and/or presence monitoring of an area of interest (Paragraph [0008]).

4. Claims 7, 29, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marshall (US Statutory Invention Registration H1497), as in view of Petajan (US

Patent 4,975,960), as applied to claim 1 above, and further in view of Lahr (US 2002/0194005).

As per claim 7, Marshall in view of Petajan teach the apparatus according to claim 1, but they do not specifically mention the video camera positioned so as to capture a frontal view of the mouth of the user and is positioned to the side of the center line of the mouth. However, Lahr teaches a first camera pointing toward the lips, mounted at a nearly central location on the side of the pivoting bail band closest to the lips so as to provide a frontal lip camera function (Paragraph [0023] and Fig. 6b).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the feature of a video camera positioned to the side of the center line of the mouth as taught by Lahr for Marshall's apparatus, as modified by Petajan, because Lahr provides a head-worn, tri-modal device for increasing transcription accuracy in a voice recognition process and/or for processing unvocalized speech (Paragraph [0002]). Lahr also provides that a form of machine lip reading using camera data take place to augment the analog voice recognition processing. The data obtained from the machine lip reading would serve as additional input "decision base" channels to aid the algorithmic processors to convert the spoken speech into written words (Paragraph [0095]). The actual lip reading would utilize one or more cameras mounted adjacent to the speaker's lips. As shown in Fig. 6 and 7, three cameras may be used (Paragraph [0096]).

As per claim 29, Marshall in view of Petajan teach the apparatus according to claim 1, but they do not specifically mention the apparatus further comprising a fiber

optic cable providing an optical image of the frontal view of the mouth to the video camera. However, Lahr teaches that should the desired camera be somewhat large for the desired bail arm shape, it is also possible to mount the cameras near the pivot point of the bail arm, and use an imaging fiber optic cable to transfer the optical image from the pickup point on the bail arm to the light sensitive chip in the camera circuit (Paragraph [0091]), wherein the pickup points on the bail arm are where the cameras are located and according to paragraph [0090] there are two frontal cameras (one anamorphic camera that looks at the whole mouth, and a center detail camera that looks just at the middle quarter of the mouth), and a side camera (looking at just lip protrusion, as in lip pursing).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the feature of a fiber optic cable providing an optical image of the frontal view of the mouth to the video camera as taught by Lahr for Marshall's apparatus, as modified by Petajan, because Lahr provides a head-worn, tri-modal device for increasing transcription accuracy in a voice recognition process and/or for processing unvocalized speech (Paragraph [0002]), also he provides the use of plastic fibers in a fiber optic cable in order to substantially reduce costs (Paragraph [0091]).

As per claim 30, Marshall in view of Petajan teach the apparatus according to claim 1, but they do not specifically mention the illumination source including a fiber optic cable to illuminate the mouth of the user. However, Lahr teaches that with modern optical processors, it is even possible to utilize fiber cables that were not collated in their

manufacture (as in illumination fiber cables) by "collating" the output of each fiber by a new data address (Paragraph [0091]).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the feature of a fiber optic cable providing an optical image of the frontal view of the mouth to the video camera as taught by Lahr for Marshall's apparatus, as modified by Petajan, because Lahr provides a head-worn, tri-modal device for increasing transcription accuracy in a voice recognition process and/or for processing unvocalized speech (Paragraph [0002]), also he provides the use of plastic fibers in a fiber optic cable in order to substantially reduce costs (Paragraph [0091]).

5. Claims 9, 20, 23-25, and 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Marshall (US Statutory Invention Registration H1497), in view of Petajan (US Patent 4,975,960), as applied to claim 1 above, and further in view of Paterson et al. (US Patent 5,794,163).

As per claim 9, Marshall in view of Petajan teach the apparatus according to claim 1, but they do not specifically mention the microphone being of the noise reduction type. However, Paterson et al. teach a capacitor 214 placed directly across the leads of microphone 117 in microphone cartridge 207 to reduce noise reaching microphone 117 (Col. 8, lines 45-48 and Fig. 2). Noise reduction is further accomplished by coupling capacitor 213 across the input to microphone amplifier 209 and capacitor 212 across the output of microphone amplifier 212. Capacitor 213 serves to shunt noise injected by boom wires 206 to ground while capacitor 212 prevents noise on the

output of microphone amplifier 209 from being coupled through parasitic components of microphone amplifier 209 to the input of microphone amplifier 209 (Col. 8, lines 55-63).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the feature of a microphone of noise reduction type as taught by Paterson et al. for Marshall's apparatus, as modified by Petajan, because Paterson et al. provides a variety of circuit elements in both wireless telephone 101 and in headset 102 to suppress noise caused by the TDD/TDMA RF environment (Col. 7 line 67 to Col. 8 line 3).

As per claim 20, Marshall in view of Petajan teach the apparatus according to claim 1, but they do not specifically mention the apparatus further comprising an amplifier coupled to the microphone. However, Paterson et al. teaches a headset 102 (Fig. 2) including an earphone capsule 204 held in place by a band over the users head or by a clip attached to the user's ear lobes. A small microphone cartridge 207 is placed in a pod at the end of a boom (not shown) that places the microphone near the user's mouth (Col. 8, lines 13-17). Wires 206 extend through the boom (not shown) from earphone capsule 204 to the microphone cartridge 207 (Col. 8, lines 24-25). Also the earphone capsule 204 includes an amplifying circuitry 209 for amplifying a weak signal from the microphone 117 (Col. 8, lines 26-27).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the feature of an amplifier coupled to a microphone as taught by Paterson et al. for Marshall's apparatus, as modified by Petajan, because Paterson et al. provides a headset for hands-free wireless telephone, where the

headset includes an earphone capsule (Col. 8, lines 13-14), and wherein the earphone capsule includes an amplifying circuitry for amplifying the weak signal from the microphone (Col. 8, lines 26-27).

As per claim 23, Marshall in view of Petajan teach the apparatus according to claim 1, but they do not specifically mention the apparatus further comprising a speaker for transmitting sound to the user, the speaker positioned in proximity to the ear of the user. However, Paterson et al. teaches a headset 102 (Fig. 2) including an earphone capsule 204 held in place by a band over the users head or by a clip attached to the user's ear lobes. A small microphone cartridge 207 is placed in a pod at the end of a boom (not shown) that places the microphone near the user's mouth (Col. 8, lines 13-17). Wires 206 extend through the boom (not shown) from earphone capsule 204 to the microphone cartridge 207 (Col. 8, lines 24-25). Also the earphone capsule 204 includes a headset speaker 116 and clamp diodes 208 coupled across speaker 116 to protect the users ears from loud received noise (Col. 8, lines 30-33).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the feature of a speaker for transmitting sound to a user as taught by Paterson et al. for Marshall's apparatus, as modified by Petajan, because Paterson et al. provides a portable telephone having a headset allowing hands-free operation of the portable telephone in a time division duplex (TDD) or time division multiple access (TDMA) communication system (Col. 1, lines 11-14), where the headset includes an earphone capsule that houses a headset speaker (Col. 8, lines 30-31).

As per claim 24, Marshall, as modified by Petajan, and further in view of Paterson et al., teach the apparatus according to claim 23, further comprising a communication path from the computer to the speaker (Paterson et al.'s Col. 4 line 62 to Col. 4 line 1, *During a receive data time frame, antenna 110* (from Fig. 1) *provides an RF signal on RF receiver (RF RX) unit 109. RF RX unit 109 cooperates with microprocessor 121 to convert the received RF signal from TDD/TDMA format to an AC audio voice signal, hereinafter referred to as the speaker audio signal. RF RX unit 109 delivers the speaker audio signal on line 122 to amplifier 123.* Also on Col. 4, lines 5-10, *when headset 102 is present, the received audio voice signal passes from amplifier 123 through resistor 127, inductor 128, to line 129. Line 129 is placed in position 129 when headset 102 is plugged into jack 111 and couples the speaker audio signal through line 115 in headset 102 to headset speaker 116.* It is noted that the components mentioned above form part of the wireless telephone circuit of Fig. 1, which is interpreted by the examiner as a computer due to the fact that it makes use of a microprocessor 121 for processing inputs/outputs as described above.).

As per claim 25, Marshall, as modified by Petajan, and further in view of Paterson et al., teach the apparatus according to claim 24, wherein the communication device for communicating the output of the microphone to the computer and communication path from the computer to the speaker are used in combination to perform conventional telephony wherein the computer communicates with conventional telephony interfaces (Paterson et al.'s Col. 4, lines 42-44, *During a telephone conversation, voice audio is converted to a weak electrical signal in either microphone*

107 in the handset audio 103 or by microphone 117 in headset 102. Further Col. 4, lines 54-61, *the selected microphone audio signal passes on line 113 through capacitor 114 which passes the microphone signal and rejects the underlying DC voltage. The microphone audio signal in then amplified by microphone amplifier 120 and passed on line 117 to RF transmitter unit 108. RF transmitter (RF RX) 108 cooperates with microprocessor 121 to convert the AC voice audio signal into a TDD/TDMA digital signal, which is transmitted over antenna 110.* Col. 4 line 62 to Col. 4 line 1, *During a receive data time frame, antenna 110* (from Fig. 1) *provides an RF signal on RF receiver (RF RX) unit 109. RF RX unit 109 cooperates with microprocessor 121 to convert the received RF signal from TDD/TDMA format to an AC audio voice signal, hereinafter referred to as the speaker audio signal. RF RX unit 109 delivers the speaker audio signal on line 122 to amplifier 123.* Also on Col. 4, lines 5-10, *when headset 102 is present, the received audio voice signal passes from amplifier 123 through resistor 127, inductor 128, to line 129. Line 129 is placed in position 129 when headset 102 is plugged into jack 111 and couples the speaker audio signal through line 115 in headset 102 to headset speaker 116.* It is noted that the components mentioned above form part of the wireless telephone circuit of Fig. 1, which is interpreted by the examiner as a computer due to the fact that it makes use of a microprocessor 121 for processing inputs/outputs as described above.).

As per claim 27, Marshall in view of Petajan teach the apparatus according to claim 1, but they do not specifically mention the apparatus further comprising a speaker for transmitting sound to the user, the speaker positioned in proximity to the ear of the

user; and a wireless telephony transceiver connected to the speaker and the microphone to provide wireless telephony functions. However, Paterson et al. teach a headset speaker 116 housed in an earphone capsule 204 (Col. 8, lines 30-31 and Fig. 2). He also teaches an RF transmitter unit (RF TX, 108 from Fig. 1), which cooperates with microprocessor 121 to convert the AC voice audio signal into a TDD/TDMA digital signal which is transmitted over antenna 110 (Col. 4, lines 59-61), and a RF RX unit 109, which cooperates with microprocessor 121 to convert the received RF signal from TDD/TDMA format to an AC audio voice signal (Col. 4, lines 63-66). Also Fig. 1 shows RF RX 109 and RF TX 108 connected to microphone 117 and speaker 116 from headset 102.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the features of a speaker and a wireless telephony transceiver as taught by Paterson et al. for Marshall's apparatus, as modified by Petajan, because Paterson et al. provides a portable telephone having a headset allowing hands-free operation of the portable telephone in a time division duplex (TDD) or time division multiple access (TDMA) communication system (Col. 1, lines 10-14).

6. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Marshall (US Statutory Invention Registration H1497), in view of Petajan (US Patent 4,975,960), as applied to claim 1 above, and further in view of Bridgelall (US 2003/0110508).

As per claim 21, Marshall, in view of Petajan, teach the apparatus according to claim 1, but they do not specifically mention the communication device including a radio

frequency transmitter receiving the video output of the video camera and the audio output of the microphone and a corresponding receiver adapted to proved the video and audio to the computer. However, Bridgelall teaches a dual radio frequency (RF) transceiver and an audio video data processor both supported on a common support having a predetermined form factor. Each RF transceiver is operative for communicating with a computer network, through different communication channels such as (i) a wireless LAN, and (ii) a WAN, GPRS, CDPD, or GSM cellular telephone network (Paragraph [0023], also from Fig. 1, wireless data RF transceiver antennas 21, 22, and 23, also video input 12 and microphone (not numbered but shown as part of subassembly 11)).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the feature of a radio frequency transmitter as taught by Bridgelall for Marshall's apparatus, as modified by Petajan, because Bridgelall provides a single integrated module including distinct RF transceivers and optionally an interface to a video camera, or auto ID reader, all mounted on a common support, especially on a standard from factor such as a compact flash card for use in mobile computers (Paragraph [0020]).

7. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Marshall (US Statutory Invention Registration H1497), in view of Petajan (US Patent 4,975,960) and Paterson et al. (US Patent 5,794,163), as applied to claim 25 above, and further in view of Lewis et al. (US 2003/0167169).

As per claim 26, Marshall, as modified by Petajan and Paterson et al., teach the apparatus according to claim 25, but they do not specifically mention the computer being adapted to perform telephony functions over the internet. However, Lewis et al. teach a speech recognition system 100 (SRS) that interacts with a user 105 to access any of a variety of speech-enabled applications or speech-based functions. The speech recognition engine 115, the TTS 120, the SRS data 125, as well as the audio interface 110 of the SRS 100 can be implemented within a computer system having suitable audio processing circuitry or a "sound card." Once a voice link has been established between the user 105 and the SRS 100, an enrollment script can be played to the user through the audio interface 110. For example, the enrollment script can be played from the computer system through a microphone/headset operatively connected to the computer system or from the computer system through a communications network such as the Internet or the public switched telephone network (PSTN), in which case the audio interface can be a telephone handset, headset, mobile phone, or the like (Paragraph [0020]).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the feature of a computer adapted to perform telephony functions over the internet as taught by Lewis et al. for Marshall's apparatus, as modified by Petajan and Paterson et al. because Lewis et al. provides a nonvisual method of enrolling users in a speech recognition system (SRS) [...] through an audio interface (Paragraph [0014]), wherein the audio interface can be a microphone/headset combination or a telephone handset or headset (Paragraph [0019]).

8. Claims 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marshall (US Statutory Invention Registration H1497), in view of Petajan (US Patent 4,975,960), as applied to claim 1 above, and further in view of Jones, II et al. (US 2005/0178841).

As per claim 10, Marshall, in view of Petajan, teach the apparatus according to claim 1, but they do not specifically mention the illumination source including a plurality of broadband light emitters. However, Jones, II et al. teaches a light source 10 that provides optical excitation for the mark (targeted object), which may consist of a pulsed Xe strobe or flashlamp, a broadband source such as a halogen lamp or incandescent, a chopped broadband or discrete source such as a laser, LED or super-luminescent LED, a time-modulated broadband source or discrete source, etc. The source can consist of one or more of these optical sources; for example, it might incorporate several narrow-band LEDs to excite a variety of luminescent compounds (Paragraph [0061]).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the feature of an illumination source including a plurality of broadband light emitters as taught by Jones, II et al. for Marshall's apparatus, as modified by Petajan, because Jones, II et al. provides a method and system whereby products or documents can be identified based on the recording of a luminescent image. The image consists of a discrete luminescence spectrum and a well defined luminescence decay time. Using a pulsed source for photoexcitation, luminescence intensities are recorded as a function of time following initiating pulses of

light. Wavelength and time resolution of luminescence signals produces a unique signature that can be identified with a particular product or document (Paragraph [0048]).

As per claim 11, Marshall, as modified by Petajan, and further in view of Jones, II et al., teach the apparatus according to claim 10, further comprising an optical filter limiting light emitted from said broadband light emitters to a band of infrared wavelengths (Jones, II et al.'s emission filter of Fig. 11 and paragraph [0067], *The Emission Filter 6 shapes the optical emission spectrum of the excited Mark* (targeted object). *It can consist of a grating, a dielectric filter or stack, a short-pass filter, a band-pass filter, a line filter to filter out ambient light, a glass filter, or any other optical spectrum-shaping element. The Emission Filter may incorporate several of these filters, for example in a filter wheel. The Emission Filter may pass spectral power in the emission wavelength bands of the Mark luminescence. The Emission Filter may pass wavelengths in some subset(s) of the UV, visible, and infrared portions of the spectrum*).

As per claim 12, Marshall in view of Petajan teach the apparatus according to claim 1, but they do not specifically mention the illumination source including a plurality of narrowband light emitters. However, Jones, II et al. teaches a light source 10 that provides optical excitation for the mark (targeted object), which may consist of a pulsed Xe strobe or flashlamp, a broadband source such as a halogen lamp or incandescent, a chopped broadband or discrete source such as a laser, LED or super-luminescent LED, a time-modulated broadband source or discrete source, etc. The source can consist of

one or more of these optical sources; for example, it might incorporate several narrow-band LEDs to excite a variety of luminescent compounds (Paragraph [0061]).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the feature of an illumination source including a plurality of narrowband light emitters as taught by Jones, II et al. for Marshall's apparatus, as modified by Petajan, because Jones, II et al. provides a method and system whereby products or documents can be identified based on the recording of a luminescent image. The image consists of a discrete luminescence spectrum and a well defined luminescence decay time. Using a pulsed source for photoexcitation, luminescence intensities are recorded as a function of time following initiating pulses of light. Wavelength and time resolution of luminescence signals produces a unique signature that can be identified with a particular product or document (Paragraph [0048]).

As per claim 13, Marshall, as modified by Petajan, and further in view of Jones, II et al., teach the apparatus according to claim 12, further comprising an optical filter limiting light emitted from said narrowband light emitters to a band of infrared wavelengths (Jones, II et al.'s emission filter of Fig. 11 and paragraph [0067], *The Emission Filter 6 shapes the optical emission spectrum of the excited Mark* (targeted object). *It can consist of a grating, a dielectric filter or stack, a short-pass filter, a band-pass filter, a line filter to filter out ambient light, a glass filter, or any other optical spectrum-shaping element. The Emission Filter may incorporate several of these filters, for example in a filter wheel. The Emission Filter may pass spectral power in the*

emission wavelength bands of the Mark luminescence. The Emission Filter may pass wavelengths in some subset(s) of the UV, visible, and infrared portions of the spectrum).

9. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Marshall (US Statutory Invention Registration H1497), in view of Petajan (US Patent 4,975,960), as applied to claim 15 above, and further in view of Tomioka (US Patent 6,803,947).

As per claim 16, Marshall in view of Petajan teach the apparatus according to claim 15, but they do not specifically mention the illumination source being de-energized during retrace or blanking periods of the video camera. However, Tomioka teaches a video camera and the process of acquisition of a still picture by the video camera (Col. 3, line 66), wherein during the acquisition preparations, *the CCD driver 9 generates first and second readout signals (B1 and B2) in synchronization with alternate vertical synchronization signals (A), but the strobe lamp is turned off, the subject is not illuminated, substantially no charge accumulates in the sensor elements, and the output video signal (D) is black. The external device that controls the strobe lamp drives the strobe timing signal high for a brief interval between two consecutive vertical synchronization signals (A), not overlapping either readout signal (B1, B2). When strobe light goes high, accordingly, the strobe lamp generates a flash of light that illuminates the subject during the integration time of the sensor elements in the CCD image sensor2; that is, during the time in which the sensor elements accumulate charge. Light reflected from the subject is focused by the lens 1 onto the CCD image*

sensor2, producing photocharges in proportion to the incident light intensity (Fig. 4 and Col. 4, lines 6-23).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the feature of de-energizing illumination source during retrace or blanking periods of the video camera as taught by Tomioka for Marshall's apparatus, as modified by Petajan, because Tomioka provides a video camera that generates a video signal by mixed-line-pair readout from a solid-state image sensor with a complementary color filter (Col. 1, lines 7-9). Also Tomioka provides a video camera that can take still pictures in color with full vertical resolution, equivalent to the pictures taken by an electronic still camera, and a method for obtaining full-resolution still pictures from a solid-state image sensor and signal processing circuits of the type normally used to generate color moving pictures with interlaced scanning (Col. 2, lines 43-50).

10. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Marshall (US Statutory Invention Registration H1497), in view of Petajan (US Patent 4,975,960), as applied to claim 15 above, and further in view of Rubis (US Patent 3,771,038).

As per claim 17, Marshall in view of Petajan teach the apparatus according to claim 15, but they do not specifically mention the illumination source being periodically energized by a pulse generator having a pulsed output, wherein a period of the pulsed output and a pulse width of the pulsed output are independently controlled. However, Rubis teaches a pulse generator 47 having an adjustable period, which is the sampling

period T. The output of pulse generator 47 is a pulse waveform having the period T (Col. 3, lines 25-27). Rubis also teaches a pulse stretcher 49 connected to receive the output of the pulse generator 47, and is adjusted to stretch the width of the pulse generated waveform to a value τ (Col. 3, lines 38-41).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the feature of an independently controlled period of a pulse output and pulse width of pulsed output as taught by Rubis for Marshall's apparatus, as modified by Petajan, because Rubis provides a pulse output amplifier with an adjustable period and adjustable pulse width sampling time [...] The sampling period and sampling time is made adjustable for use with various kind of electronic or electromechanical systems where the sampling period or sampling time may be made necessarily short or long in accordance with utilization needs of the device (Col. 2, lines 10-18).

11. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Marshall (US Statutory Invention Registration H1497), in view of Petajan (US Patent 4,975,960), as applied to claim 1 above, and further in view of Schneider et al. (US 2003/0198357).

As per claim 31, Marshall in view of Petajan teach the apparatus according to claim 1, but they do not specifically mention the apparatus further comprising a tube acoustically coupled to the microphone so as to provide speech of the user to the microphone. However, Schneider et al. teaches a Signal Intelligibility Enhancement (SIE) processor (Paragraph [0024]) that includes a second acoustic input device 402

(from Fig. 4) that is typically located either inside the ear canal (a so-called closed-loop implantation) or outside the ear canal (a so-called open-loop implementation) (Paragraph [0038]), wherein the closed-loop implementation may be an acoustic tube that supplies audio to a microphone molded into the ear cup (Paragraph [0039]).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the feature of a tube acoustically coupled to a microphone as taught by Schneider et al. for Marshall's apparatus, as modified by Petajan, because Schneider et al. provides a Signal Intelligibility Enhancement (SIE) algorithm that utilizes a measurement of either (1) the level of the outside interference (undesired signal, noise) or (2) the level of the interference (undesired signal, noise) in the headset ear cup or in the ear canal to adaptively adjust the gain and equalization of the signal-of-interest (electrical) so that the intelligibility and audibility of the signal-of-interest is improved (Paragraph [0015]).

12. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Marshall (US Statutory Invention Registration H1497), in view of Petajan (US Patent 4,975,960), as applied to claim 1 above, and further in view of Harman (US Patent 6,473,115).

As per claim 8, Marshall, in view of Petajan, teach the apparatus according to claim 1, but they do not specifically mention the apparatus further comprising an optical filter limiting light entering the video camera to a band of infrared wavelengths. However, Harman teaches a video camera used in the tracking means (2), that may be

a CCD or vidicon type, the lens of which is fitted with an infrared bandpass filter (Col. 5, lines 38-39, and tracking means (2) from Figs. 1a & 1b).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the feature of a video camera with an infrared filter as taught by Harman for Marshall's apparatus, as modified by Petajan, because Harman provides a multiple viewer image viewing system capable of providing a plurality of images to viewers and/or a three dimensional (3D) visual effect in a viewed image (Col. 1, lines 9-12).

13. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Marshall (US Statutory Invention Registration H1497), in view of Petajan (US Patent 4,975,960), as applied to claim 1 above, and further in view of Neal et al. (US Patent 6,547,395).

As per claim 28, Marshall, in view of Petajan, teach the apparatus according to claim 1, but they do not specifically mention the illumination source being adjustable to shape a light output distribution to reduce exposure of eyes of the user to the light output. However, Neal et al. teach a system using a pulsed wavefront sensor to measure the human eye while reducing the total exposure by controlling the duty cycle of the pulsed light source (Fig. 4 and Col. 3, lines 51-54).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the feature of adjustable illumination source as taught by Neal et al. for Marshall's apparatus, as modified by Petajan, because Neil et al. provides way to use pulsed wavefront sensors for applications in addition to

measurement of pulsed lasers. In particular, [...] to using a pulsed wavefront sensor to measure moving elements, to simplify measurements involving moving parts, and to reduce exposure, particularly for use with biological systems (Col. 1, lines 27-33).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Natalie Lennox whose telephone number is (571) 270-1649. The examiner can normally be reached on Monday to Friday 7:30 am - 5:00 pm (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Xiao Wu can be reached on (571) 272-7761. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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NL 5/11/2007

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